Architecture Studio: 1st Year Spring

Spring 2014, CMU, Arch #48-105, M/W 12:30-4:20
Class Website: www.andrew.cmu.edu/course/48-105

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(1/17/15)

Project 1: TECTONIC SYSTEMS: Marble & Plane

Proj.1, ASSIGNMENT 3 - HOMEWORK (due Wed. 1/21, 1:30pm)

Part 1: STRUCTURE

Rebuild your marble-moving constructions using heavier, higher performance paper where appropriate. Use cardstock, museum board, or similar to create more rigid planes, crisper folds, smoother curves, and more sensuous texture. Use thicker matt board, illustration board, or chipboard to create structural members that make your construction perform better, but also articulate spatial and compositional ideas more strongly.

Read: Seckler, "Structure, Construction, Tectonics," in Structure in Art & Science (1965)

Make *two (2)* variations of your marble mover, highlighting different ideas and types of translation using the following hints or guidelines:

Constraints: Beware of the many parameters that you can vary (number of sheets, glues & fasteners, type of paper, thickness of cardboard, scale, color, geometry, pattern, etc.) For best results, impose your own constraints and clearly articulated rules. More is not always better. Reduce and be concise. Edit yourself and your ideas radically. Make one piece do two different jobs, rather than just add stuff. Reveal the essence.

Translation: "Translation", whether in languages, or architecture, always implies some change of meaning and form, a "trans-formation." In iterating, rebuilding, and restructuring, do not force your old ideas onto the new structure. Look closely at what you make, let the material and joinery guide you. Allow your ideas to change with the new materials.

Structure & Ribs: Remember that "structure" is more than just a tool to fight gravity, but also a tool to organize and clarify. Be sure to explore several different ways of using heavier paper: as a stronger, more rigid material added to the design to allow for greater loads and stability; as "ribs" or skeleton that can create volume, enhance performance, and articulate space; or as "fins," contours, or sectional profiles that can abstract or animate the design to reveal underlying systems and formal patterns.

Part 2: ANALYZE & DESCRIBE

Architects must employ and invent methods of description to capture and communicate design ideas to clients and construction workers clearly and logically. The process of measuring, mapping, and drawing serves not only as an act of communication, but as a means of analyzing and better understudying the project's underlying orders and ideas.

Use the tools introduced in Rhino to construct the geometric "skeleton" that underlies your paper structure. Use Points, Curves (lines are straight curves), and Surfaces. You should use primarily "ruled" or "developable" surface geometry to create your skeleton (see the chapter in Architectural Geometry on Blackboard). *Avoid literally modeling the volumetric objects that compose your paper structure.* Instead, abstract it into a geometric "framework" or a "wire-frame" diagram. Build the "scaffolding" or geometric "armature" for your structure.

Seek to discover rules and relationships that provide order in your model. What are the rhythms, proportions, geometric forms, and "moves" that DESCRIBE your structure? What is the structure that orders your ideas? What is the SYSTEM that would allow some unfamiliar with your model to understand and reconstruct it?

From this Rhino model, produce a "drawing" on a single tabloid sheet (11 x 17) that communicates these geometric systems in several different views. Remember that a drawing is a 2D representation in any medium or multiple media. It is not so much about "appearance," as about communicating ideas and order, a projection of one view, *or a series of views,* of your model onto paper, often done in multiple steps and in several layers.

To create this multi-view drawing, export the model to Adobe Illustrator from one or several views (for axo views consider and experiment with the "Make 2D command" under the Dimensions tab), then manipulate line weights and layers to improve legibility. Use rigorous layering in Rhino to make this process easier. Consider overlaying color, shading, hand drawings, or Photoshop work in a multi-step process to create a multi-layer drawing to further improve clarity, hierarchy, and focus.

Upload your final drawing and best process work to Pinterest (at least 5 images)